

WEY (H. D.)

MONOGRAPHS
OF THE
INDUSTRIAL EDUCATION ASSOCIATION

VOL. I. No. 3.

Entered at the Post Office at New York
City as second class matter.

Bi-MONTHLY.
PRICE, \$1.00 A YEAR.

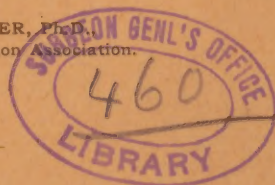
PHYSICAL AND INDUSTRIAL
TRAINING OF CRIMINALS

BY

HAMILTON D. WEY, M. D.,

Physician to the Elmira (N. Y.) State Reformatory.

EDITED BY
NICHOLAS MURRAY BUTLER, Ph.D.,
President of the Industrial Education Association.



NEW YORK.
INDUSTRIAL EDUCATION ASSOCIATION.
MAY, 1888.
Twenty Cents.

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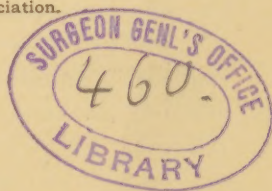
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PREFATORY NOTE.

As the student of medicine observes disease and from pathology obtains valuable assistance for the study of physiology, so should the student of Education observe the diseased and blunted mind. From the careful study of the methods used in the development of the idiotic, the criminal and the insane, the teacher may learn much that will add considerably to his knowledge of the human mind and the best modes of training and developing it. For this reason Dr. Wey's important paper is published in the Educational Monograph Series.

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Industrial Education Association.

Physical and Industrial Training of Criminals

Not many years since, the idea obtained, and public sentiment countenanced it, that the function of a prison was to impress upon the convicted felon the consciousness that the way of the transgressor is hard ; and to this end a discipline and regime prevailed that would not be tolerated at the present time.

With the advance made in matters relating to penology, it has come to be generally understood that the object of prisons is the welfare of society, in the sequestration and reformation of the criminal. The relations of society to the criminal class are analogous to those existing in the case of the insane ; self-protection primarily, and secondarily the well being of the convicted felon, and his subjection to influences that will modify and correct his abnormal tendencies, that, ultimately, when given his freedom, he will not be a menace to the community in which his lot is cast.

To society it is due that the criminal, be he such through environment, heredity, or personal tendency, be removed from former haunts and companions, and placed where he has no longer the opportunity to prey upon the person or property of those about him. For the criminal, society should see to it that his prison life is not made one of retribution, nor his daily routine a mere round of perfunctory labor in the shop ; but recognize the fact that his criminal practices and tendencies have their origin in a something back of, or beyond, the mere desire to possess what is his neighbors', or to live without the exertion of maintaining himself ; and his crimes against person something more than blind retaliation and ungoverned passion. His malpractice has its origin in blunted or non-developed

nervous areas, and is indicative of wrong-headedness.—Whatever may be said of the motives or incentives that led to crime, the fact remains that the head of the criminal is wrong.

To correct this abnormal mental condition should be the aim of the State in dealing with its convicted felons, and no scheme or plan has accomplished such results as those wrought by education, as comprised in letters and physical and manual training, tempered by the wholesome discipline indispensable in successful prison management.

It is a mistake to suppose the criminal is naturally bright. Moral failure and blunted intellect, as a rule, go hand in hand. If bright, it is usually in a narrow line and self repeating. Like the cunning of the fox, his smartness displays itself in furthering his schemes, and personal gratification and comfort.

With moral obtuseness there is intellectual instability. He cannot pursue one course long without going to pieces; he is vacillating, without fixed purpose or aim, and tempered in his conduct by the passing hour. To influence such a being as this, an abnormality, mentally and often physically, it is necessary that mental growth should begin at the very foundation, and radical measures be employed. The training of the criminal mind, the implanting of better hopes and aspirations and the correction of mental abnormalities is a specialty in the broad domain of education.

The youthful criminal, and I presume the same applies to the more mature in years, presents traits of character differing from those of his brother outside the prison walls, from whom he is as far removed by the erratic workings of his mind and inclinations as are the aboriginal and the class leader in college. The average criminal in literary attainments may be compared to the boy in the ward school grounding himself in the rudimentary branches.

To many the criminal is as a study in natural history, or regarded with sentimental sympathy and misplaced confi-

dence. To be properly studied, and his marked peculiarities of character noted, he should be observed at home, —behind the bars. The typical criminal, be he young or old, is of a cast peculiarly his own. In conscience he is almost deficient; his instincts are vicious; his power of self-control weak; and he usually detests continuous labor. The absence of self-control is due to ungovernable temper, to passion, or to mere imbecility; and the conditions that determine the particular description of crime are the character of the instincts and of the temptation.

The deficiency of conscience in criminals, as shown by the absence of genuine remorse for their guilt, astonishes all who first become familiar with the details of prison life. Scenes of heart-rending despair are hardly ever witnessed among prisoners; their sleep is disturbed by no uneasy dreams, but is easy and sound; their appetites, also, are excellent. But hypocrisy is a common vice, and all my information agrees as to the utter untruthfulness of the criminal, however plausible his statements may be. Unhappily for him, he is deficient in qualities that are capable of restraining his unkindly or inconvenient instincts. He has neither sympathy for others, nor the sense of duty, both of which lie at the base of conscience; nor has he sufficient self-control to accommodate himself to the society in which he has to live, and so promote his own selfish interests in the long run.¹

The time has gone by in which to argue that to educate the criminal is to make him a more accomplished and successful scamp, furnishing him with the means and opportunities, through his own improvement, for the more successful preying upon society; and evolving from the attenuated sneak-thief the daring and skillful cracksman.

It is through physical and mental training and their composite labor that the slumbering germs of manhood are fructified, maturing under a firm and unrelaxing discip-

¹ *Inquiries into Human Faculty*; Francis Galton, New York, 1883.

line. The average youthful criminal, as encountered in the prisons of the State, is an abnormal production, physically, mentally and morally. Generally under weight, with repulsive features in some one or more lines, and asymmetrical head ; he is coarse in fibre and heavy in his movements. His mind, while not diseased, is undeveloped, or it may be abnormally developed in certain directions ; the smartness resulting therefrom partaking of low cunning and centering about self. He is deficient in stability and will-power, and incapable of prolonged mental effort and application. His intellect travels in a rut and fails him in an emergency. His moral nature shares in the imperfections of his physical and mental state. He does not possess the power to discriminate between right and wrong, or if so, it is in favor of himself and avails nothing to society. It is easier for him to incline to evil rather than to good, to the animal rather than to the intellectual, and in this he is true to himself. His is a perverted moral nature ; a blunted mind, and a crude body.

With such conditions to deal with, the problem of education in prisons is not so simple as would at first appear ; nor is every tyro fresh from college and rejoicing in his degree competent or fit to teach his erring brethren. Skilled educators should be employed, the best in their specialties,—mathematics, language, geography, and the trades, that can be obtained. And I would state it broadly that as a rule the educational corps should be recruited from without the prison walls. The objection to an officer as a teacher is that in his dual capacity the prisoner fails to, or does but imperfectly, separate the pedagogue from the overseer or guard ; and from associations connected with his teacher as a disciplinarian comes to regard his school task as he does his daily work in the shop, a matter of discipline, part of his punishment, and not a means to reformation and the beginning of a better life. A teacher fresh from the outside world, and mingling daily

in the affairs of men, coming to him at stated intervals as a break in the routine of his life, and disassociated with the disciplinary force and prison life, is the more apt to enlist his confidence and excite an interest in his mental tasks.

Save in exceptional instances and with a well marked faculty for educational work, a prisoner should not teach his fellows, as he is prone to exercise his brief authority to the utmost, and as a matter of fact antagonize his class.

Education means occupation, either mental or physical. The time of the convict should be so employed in his shop work and school duties as to leave him no leisure moments in which to revive the past, and live over again in memory his criminal days or plan for the future; but each hour should bring to him its employments and engross his attention till the time for sleep.

He should have no connection with or reminders of the past, nor pay too much attention to the future, but throw all his energies into the present, that he may be fitted for the future, and a man evolved from the criminal.

There is a class of criminal dullards that cannot be considered as mentally unsound or representatives of the feeble minded group, yet are incapable of any prolonged mental exertion, whose efforts in the workshop are spasmodic and unsatisfactory, requiring constant spurring on to hold them to their tasks. By bodily growth and conformity to a better type of the merely physical man through physical training, it has become apparent that it is possible to excite cerebral activity in these dull in mind and heavy of body. The value of physical exercise and training as an adjuvant to mental growth is appreciated by our colleges and universities, in accordance with the belief that physical training will not produce acrobats and professional athletes, merely, but, guided and governed, bodily and mental health.

At the New York State Reformatory, during a period of sixteen months I have subjected forty-three dullards, divi-

ded into three classes, to a course of physical training. The first class was formed June 5, 1886, and consisted of ten whites and two colored, of an average of 22.9 years: 19 and 29 years representing the extremes. For a period ranging from one to two years these men had made no appreciable progress in school work, and the performance of their daily tasks had been equally unsatisfactory. In physiognomy they presented features indicative of criminal tendencies. Not one had learned a trade, but all had made a precarious living as common laborers, tramps, hostlers and street loafers. One was convicted for assault in the first degree; five for burglary in the third degree; one for grand larceny in the first degree; three for grand larceny in the second degree; one for rape, and one for attempted rape. The environment of most of the men previous to conviction was bad, many of them confessing to have had intemperate parents, while one told of an insane, and another of an epileptic mother.

The plan followed in connection with the class, and I quote from my report made to the Board of Managers,² was the substitution of a special dietary for the regular prison fare, and the weighing out of his rations to each that all might fare alike and be observed under precisely the same conditions. The school work of all was to be continued in a common course, the more advanced being put back to the level of the lowest; which could easily be done without prejudice to the former.

The physical part of the program to be embraced in baths at frequent intervals and with regularity in conjunction with passive exercise, as kneading the muscles, working the joints, and friction applied to the entire body through rubbing by a professional trainer, as employed in the Turkish bath. And, later in the day, a manual drill and calisthenics to furnish exercise and supplement the routine task hitherto daily performed in the shop.

² Report of New York State Reformatory, 1886.

June 5, the class commenced work, at which time I made a physical examination of each member.

All were well nourished, with the exception of one, who was convalescing from an acute disease. There were no indications of disease of the nervous, respiratory, vascular or digestive systems, and the bodily functions, save that of the skin, were all well performed. Five had acne, a cutaneous disorder commonly encountered in penal institutions and provoked or aggravated by well known causes; and one, ichthyosis, or fish-skin. The second grade contributed three, and the third or lowest grade, nine men. The table of weights and measurements on the following page, taken at the formation of the class, shows the physical status.

The average weight per man was 133.68 pounds, and the average height, 5 feet, $4\frac{1}{2}$ inches.

As is seen by the table, six were under and six were over weight, in proportion to their height: the former averaging 12.54 pounds below and the latter 7.04 pounds above the standard.

Instead of taking their meals in their cells, as formerly, the class was provided with a table in the first grade dining room, where they ate under the supervision of an officer, that there might be no passing of food from other tables or from man to man. Breakfast was served at six, dinner at twelve, and tea at five o'clock.

The following was the weekly dietary:

Breakfast: Coffee-cocoa, one pint; bread, 8 ounces; butter, $\frac{1}{2}$ ounce.

Dinner: Sunday:—Cooked meat, free from bone (roast pork, beef or mutton), five ounces; vegetables, nine ounces; bread, three ounces.

Monday:—Cooked meat, free from bone (boiled bacon or pickled pork), five ounces; vegetables, sixteen ounces; bread, three ounces.

PHYSICAL CHART, JUNE 5TH.

CONSECUTIVE NUMBER.	1215	1311	1319	1375	1460	1555	1691	1835	1838	2005	2096	2135
1. Grade.	3rd	2nd	2nd	3rd	3rd	3rd	3rd	3rd	2nd	3rd	3rd	3rd
2. Age.	23	22	21	23	27	21	22	26	29	21	21	19
3. Race or Nationality.	Am.	Am.	Am.	Am.	Am.	Am.	Am.	Am.	Am.	Irish	Am.	Can.
4. Weight, clothes off.	135	107	141 $\frac{1}{2}$	132 $\frac{1}{2}$	145	117 $\frac{1}{2}$	105	150	144	147	136 $\frac{1}{2}$	140
5. Height, barefooted.	5:1 $\frac{1}{2}$	5:4 $\frac{1}{2}$	5:4 $\frac{1}{2}$	5:4 $\frac{1}{2}$	5:4 $\frac{1}{2}$	5:1	5:3 $\frac{1}{2}$	5:7 $\frac{1}{2}$	5:5 $\frac{1}{2}$	5:4 $\frac{1}{2}$	5:4	5:8 $\frac{1}{2}$
6. Girth of chest.	33	30	32 $\frac{1}{2}$	32	36	31	31 $\frac{1}{2}$	33 $\frac{1}{2}$	33	33 $\frac{1}{2}$	33	34
7. Same, forced expiration.	31	29 $\frac{1}{2}$	32	31	34	30 $\frac{1}{2}$	30 $\frac{1}{2}$	32 $\frac{1}{2}$	32 $\frac{1}{2}$	32	31 $\frac{1}{2}$	32 $\frac{1}{2}$
8. Same, forced inspiration.	34	32	36 $\frac{1}{2}$	34	37 $\frac{1}{2}$	33 $\frac{1}{2}$	33	36	35	35	34	36
9. Girth of abdomen.	30	27	27	27	32	25	25 $\frac{1}{2}$	29	31	30	29	28 $\frac{1}{2}$
10. Under or over weight in proportion to height.	Over	Under	Over	Under	Over	Under	Under	Over	Over	Over	Over	Under
11. If so, how much under or over.	12 $\frac{1}{2}$	30	4 $\frac{1}{2}$	5 $\frac{1}{2}$	7 $\frac{1}{2}$	2 $\frac{1}{2}$	26	3 $\frac{1}{2}$	3	9 $\frac{1}{2}$	1 $\frac{1}{2}$	11 $\frac{1}{2}$

Tuesday :—Cooked meat, free from bone (boiled beef or mutton), five ounces ; vegetables, nine ounces ; dumplings, five ounces.

Wednesday :—Cooked meat, free from bone (meat pies), three ounces ; pie, four ounces ; vegetables, twelve ounces.

Thursday :—Cooked meat, free from bone (boiled bacon or pickled pork), five ounces, vegetables, sixteen ounces ; dumplings, four ounces.

Friday :—Fish (fried or boiled, with melted butter), ten ounces ; vegetables, nine ounces ; bread, four ounces.

Saturday :—Cooked meat, free from bone (Irish stew), three ounces ; stew, sixteen ounces ; bread, six ounces.

Supper : Tea, cocoa, or milk, one pint ; bread, eight ounces ; butter, one-half ounce.

At 8 A. M. the class was marched to the school room. An idea of their mental attainments can be formed from the fact that one could neither read nor write ; one barely do either ; four understood the successive steps necessary to work an example in long division, but never could obtain the correct answer ; while the balance came to grief upon the shoals of rudimentary arithmetic from notation to simple division. Their stock of information was surprisingly small, being generally limited to a slight knowledge of the things they liked to eat and the work they preferred to do. Not one knew the name of the country in which he lived, its physical features, or the location of cities and states.

At the conclusion of the school exercises came the bathing. Having no data at command, as to how frequently a man could bathe without physical deterioration, I was obliged through observation to determine this point. Beginning with a bath every day, but finding this too enervating, changes were made from time to time, until the routine resolved itself into three baths a week, per man : one tub and two vapor baths one week, followed the next, by two tub and one vapor.

The tub bath consisted in placing a man in a tub of water heated to about 100° F., and leaving him there to rub and soap himself for fifteen minutes or longer. From the tub he was placed upon a marble slab where he was douched with hot and cold water and sprayed. After this, the body was spatted until the skin was in a glow, the muscles pinched and kneaded, passive motion of the joints employed, followed by a brisk rubbing with a coarse crash towel or Turkish bathing mitten, all this being done by a professional trainer, who was available at the time. Being obliged to make use of the facilities at hand, the vapor bath was the moist instead of the dry or heated air, and consisted of turning steam into a room and maintaining an atmosphere of 115° F. A staging was erected about six feet from the floor provided with seats, and upon this the men were placed with a bucket of cold water and a sponge, to wipe their faces as they desired. Here they remained about twenty minutes, perspiring profusely, when they were placed upon the marble slab one by one, soaped and douched, and manipulated by their trainer as has been described, after which they were locked in their cells. Generally after being subjected to this treatment, and upon their return to their cells, they would wrap themselves in their blankets and sleep till dinner.

After dinner, all were unlocked and taken out upon the flagging where for two hours or more they were put through a drill for physical exercise, and to compensate for the partial inactivity resulting from withdrawal from the shop and their former daily industries.

In the beginning the evolutions consisted of the movements comprised in the "setting up" drill, as employed in the case of raw recruits, previous to drill upon the field, supplemented by dumb-bell exercises. Such, in brief, is an outline of the plan pursued with these twelve men.

During the first month it was expected that all would lose in weight. The radical change wrought in the daily

routine life, the furnishing to all of a stated allowance of food, sufficient for every purpose under existing circumstances, but not allowing of stuffing in excess of actual needs, would, it seemed, result in a loss of weight that would be more than gained before the conclusion of the course. That such was the case the table of weights and measurements on the following page, taken July 1st., will show, and which is based upon the examination of eleven men, the twelfth being in the hospital with facial erysipelas.

The average weight of the eleven men was 129.31 as against 133.68 pounds, the average weight per man of the entire class June 5, or an average decrease of 4.37 pounds for the eleven; $\frac{1}{2}$ and 9, representing the least and greatest loss of weight, while two men actually gained $\frac{1}{2}$ and $13\frac{1}{4}$ pounds, respectively. The school work was conducted in a painstaking manner by the School Secretary to whose care it was committed, and called for greater mental effort on the part of the class and longer continued activity than they had ever indulged in. Suffice it to say that in the beginning all were drilled in penmanship and reading, with daily exercise in mental arithmetic according to their capabilities. As they slowly advanced with their studies an increased mental activity was noted, and the workings of the mind were less forced and laborious than at the beginning. In mental arithmetic they made progress, and were able, with comparative ease and rapidity, to add three or four single numbers.

Beginning with notation and numeration they were drilled in rudimentary arithmetic, and carried through division and cancellation with a thoroughness that enabled them to work correctly in the operations they had received instruction in.

Greater attention was given to arithmetic as a mental drill and discipline for the reason that the average criminal displays a remarkable ignorance of the science of numbers,

other things being equal, as if there was in his composition a deficiency of logical, deductive and analytical power. In substantiation of this I will mention that the largest proportion of failures in school work in the Reformatory is in mathematics, and I have no doubt but that the experience of others engaged in educational work in penal institutions is of a similar nature.

In language, sketches and stories were read to them, or by one of their number, and in a measure the study of geography was combined with this exercise by locating upon the map the countries and towns mentioned. They were, in addition to their reading exercises, furnished with paper that they might write from memory, and in their own language, the sketches read to them the previous day. The few who could not read or write, or with difficulty do either, were instructed in their A, B, C's, and in writing.

When the men began their manual exercises they were an awkward squad, and it was a matter of patience and perseverance to teach them to execute the figures simultaneously and with precision. They were slow to comprehend an order and deliberate in its execution.

They began with the "right foot, left foot" step and in time were taught other evolutions until they were able to march in line and keep step, which last was a matter of weeks. When they could do this, and do it well, they were drilled in dumb-bell exercises commencing with bells weighing three pounds, which were replaced in time with heavier ones, until a maximum of eight pounds were reached. With subsequent classes I discarded the heavier bells, never using those exceeding three pounds, as I found they answered every purpose in the work of muscular development without irritating the men through unnecessary fatigue, thereby prompting them to "soger" and malingering.

November 6th the class was discontinued, and the following day a physical examination of the men, made as in the beginning, with the results shown on the following page.

PHYSICAL CHART, NOVEMBER 7TH.

CONSECUTIVE NUMBER.	1215	1311	1319	1375	1460	1555	1691	1835	1838	2005	2096	2135
1. Grade.	2nd	2nd	2nd	2nd	2nd	2nd	2nd	2nd	2nd	2nd	2nd	2nd
2. Age.	23	22	21	23	27	21	22	26	29	21	21	19
3. Race or Nationality.	Am.	Am.	Am.	Am.	Am.	Am.	Am.	Am.	Am.	Irish	Am.	Can.
4. Weight, clothes off.	127	115	149½	135	152	121	112	152	153	130½	133	138
5. Height, barefooted.	5:1½	5:4½	5:4½	5:4½	5:4½	5:1	5:3½	5:7½	5:5½	5:4½	5:4	5:8½
6. Girth of chest.	32	31	34	32	35	31½	32	33	35	32	32	34
7. Same, forced expiration.	31	30	33	31	32	30	31	31½	33	31	31	31
8. Same, forced inspiration.	34½	34	38	35	38	34	34	36	37½	35	33½	36½
9. Girth of abdomen.	28	27	30	28½	32	28	27½	30	31	28	29	28
10. Under or over weight in portion to height.	Over	Under	Over	Under	Over	Over	Under	Over	Over	Under	Under	Under
11. If so, how much under or over.	5½	22½	12	2½	14½	1	19½	6½	12	7½	2	13½

The nine men in the third grade in the beginning attained the second, and there being no reductions, all were in the second grade at the termination of the class.

June 5th the average weight of the twelve men was 133.68 pounds. During the five months the class was under observation there was a net gain of 14.75 pounds, or an average increase in weight per man of 1.23 pounds. These are relative figures. In fact, eight gained and four lost weight. The average gain per man was 8.26 pounds : two and nine standing for the extremes.

Of the four who lost in weight, the average being 7.56 pounds, 2 and 16½ represent the minimum and maximum loss. As in June, six were under and six were over weight, with an average of 11.29 and 8.62 pounds respectively. The chest measurements are approximative, and do not fairly represent the increased lung power, as it was a matter of great difficulty to teach the men to properly expand and contract the chest at command.

The drill and discipline they were subjected to wrought an improvement in their physical condition. The baths and stimulation of the cutaneous system brought the skin to the highest degree of functional activity, overcoming the integumentary disorders of five, noted in the beginning. The daily drill and dumb-bell exercises hardened and developed muscles that previously were soft and flabby, and the entire muscular system acquired firmness and power. The setting up drill improved the carriage and conferred a rapidity of action not before indulged in. The aimless shuffling gait gave way to a carriage inspired by elastic muscles and supple joints. The faces parted with the dull and stolid look they had in the beginning, assuming a more intelligent expression, while the eye gained a brightness and clearness that before was conspicuous by its absence.

With physical culture and improvement there came a mental awakening, a cerebral activity never before mani-

fested in their prison life. The purely animal man with his ox-like characteristics seemed to recede before the intellectual. Their progress in school work was not steadily onward, but intermittently progressive.

For a time they would learn with comparative ease and appear to assimilate their mental food, when, suddenly, and without apparent cause, without any deterioration in their physical condition, their minds would cease to work and they would lapse into their former state of mental inertia.

This might continue for several days, when the mental cloud would slowly lift, and they again give evidence of mental quickening. It was as hard to develop their mental receptivity as their power of retention. During the five months they were under observation their average marking in school was 74.16 per cent. as against 45.25 per cent. for the five months immediately preceding their course of special training.

Upon the discontinuance of the class, November 7th, the men were assigned to various shops and employments, and the primary classes were subjected to the same influences and the routine of prison life as prevailed before they were selected for physical experimentation. During the following six months they were watched with interest, to observe whether they would maintain themselves in their elevation, or fall back into their former state of sloth and mental lethargy. In order to obtain a perfect record, each man had to earn nine marks a month—three in demeanor, three in labor and three in school, in the latter case correct answers to 75 per cent. of the questions being the standard required to obtain full school marks, that is, three).

The following tables show the records of eleven men (the twelfth, a southern negro, having died during the winter of pulmonary disease), for the six months preceding and immediately following the disbanding of the class:

I.

FROM DEC., 1885, TO MAY, 1886.

CONS. NO.	DEMEANOR.	LABOR.	SCHOOL.	General Average 46 per cent.
1215	$-3\frac{2}{3}$	$1\frac{1}{2}$	$\frac{2}{3}$ or 32 per cent.	
1311	-2	1	$\frac{1}{6}$ " 16 "	
1318	$1\frac{1}{6}$	$1\frac{1}{2}$	$\frac{1}{2}$ " 46 "	
1375	$-\frac{1}{6}$	$2\frac{1}{3}$	$\frac{5}{6}$ " 65 "	
1460	$-1\frac{1}{6}$	3	$1\frac{1}{2}$ " 47 "	
1555	$2\frac{2}{3}$	$1\frac{1}{2}$	1 " 51 "	
1835	$2\frac{1}{3}$	3	$1\frac{1}{6}$ " 46 "	
1838	$2\frac{2}{3}$	3	$2\frac{1}{3}$ " 77 "	
2005	$-\frac{1}{2}$	$2\frac{1}{2}$	$\frac{1}{3}$ " 28 "	
2096	$1\frac{1}{6}$	2	$2\frac{1}{6}$ " 48 "	
2135	$-2\frac{5}{6}$	3	$1\frac{1}{3}$ " 46 "	

The possible number of marks to be earned by the eleven men in this period of time, nine marks each per month, 594

Actual number of marks earned by the eleven men reached but 59
or less than $\frac{10}{11}$ of a mark per man each month.

II.

FROM NOV., 1886, TO APRIL, 1887.

CONS. NO.	DEMEANOR.	LABOR.	SCHOOL.	General Average 71 per cent.
1215	$-\frac{1}{2}$	$2\frac{1}{6}$	2 or 81 per cent.	
1311	$2\frac{1}{3}$	$2\frac{2}{3}$	$1\frac{2}{3}$ " 50 "	
1318	3	3	2 " 84 "	
1375	3	3	$1\frac{5}{6}$ " 62 "	
1460	$2\frac{5}{6}$	3	$2\frac{1}{6}$ " 63 "	
1555	$2\frac{1}{6}$	$2\frac{2}{3}$	$2\frac{1}{3}$ " 66 "	
1835	3	3	$2\frac{1}{6}$ " 40 "	
1838	3	3	$2\frac{1}{6}$ " 80 "	
2005	2	3	3 " 87 "	
2096	3	3	$2\frac{2}{3}$ " 69 "	
2135	2	$2\frac{1}{6}$	$2\frac{2}{3}$ " 94 "	

Possible number of marks to be earned by the eleven men in this period of time, 594

Actual number of marks earned, 490
or $7\frac{7}{16}$ marks per month, per man.

A study of these statistics will show a simultaneous and rapid improvement along the three-fold line of moral, physical and intellectual capacity, more pronounced in certain individuals than others, but most encouraging, considering the general average before the class was formed, as compared with that after disbandment.

The advance made in moral and intellectual development, represented respectively by $2\frac{1}{2}$ and $1\frac{3}{2}$, before, and $2\frac{1}{3}$ and $2\frac{9}{10}$, after, is most striking, and occurs in no one isolated case, but is common to all.

At the present time of writing, Oct. 20, the status of the eleven men is as follows: released by expiration of maximum time, 1; paroled, and out upon ticket-of-leave, 3; first grade, 4; second grade, 1; not doing well, 2. The three men in the second and third grades, and not doing well, have proved recreant in moral rather than in intellectual lines; while those in the first grade are making an honest effort, through the three-fold course, to obtain their release and demonstrate their ability to maintain themselves in rectitude. The stimulation of the physical powers a year ago, in the case of three, impressed their mental organization to a degree that enabled them to earn their release upon parole, whereas, if left to themselves their minds would never have been quickened, as a reflex of an improved physical state.

The two succeeding classes, were treated in the main in a manner similar to the first.

Their physical course was not as thorough or satisfactory, owing to the loss of the trainer, who was released upon parole, and whose successor was neither as capable nor competent. In spite of the disadvantage of an indifferent instructor, the men improved appreciably, and gave evidence of what could be accomplished under competent guidance.

Instead of having a special dietary, they received the regular prison fare and ate in their cells. In school they

continued their work in their respective classes as before. These men did not possess the ox-like traits presented by the first class, and though more prepossessing in their physiognomy, were more difficult to manage and impress. They were inclined to malingering and would frequently deliberately reduce themselves physically, placing themselves in antagonism to the system being pursued. A few of them were country clods, stooped shouldered, and heavy of foot; the balance being city born and bred, undersized and poorly nourished. The most of them had been recently received, and were selected for physical training, that through bodily betterment they might be the better able to maintain their standing and earn their marks when subjected to the routine of task in school and shop. The others were dullards in school and sluggards in the shop, picked out for special training, that through bodily improvement, mind and muscle, in their reciprocal relations, might work in harmony. They were all specimens of either mental or physical abbreviation.

The accompanying charts give the general markings of seven men and show at a glance the influence of physical training upon their conduct.

In the charts the consecutive numbers of the men are given at the beginning of the individual tracings. The numerals in the tracings represent grade changes dependent upon loss or gain of marks.

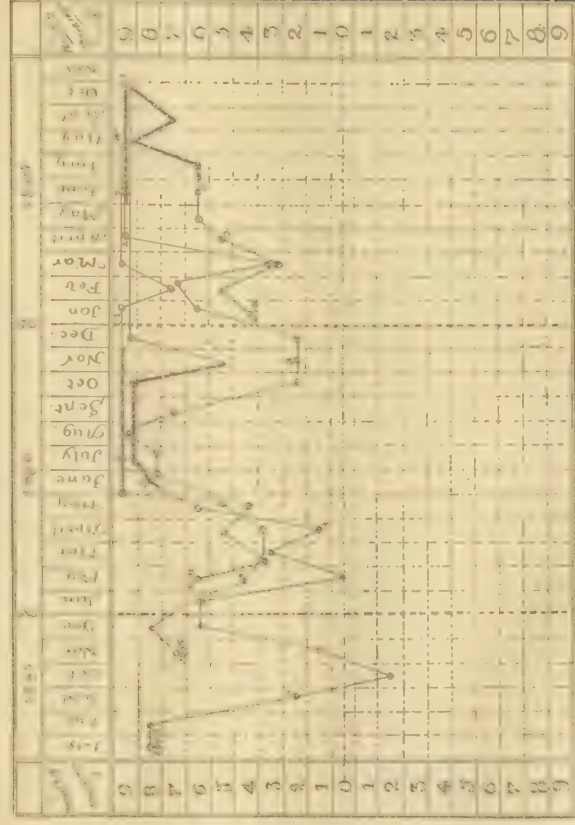
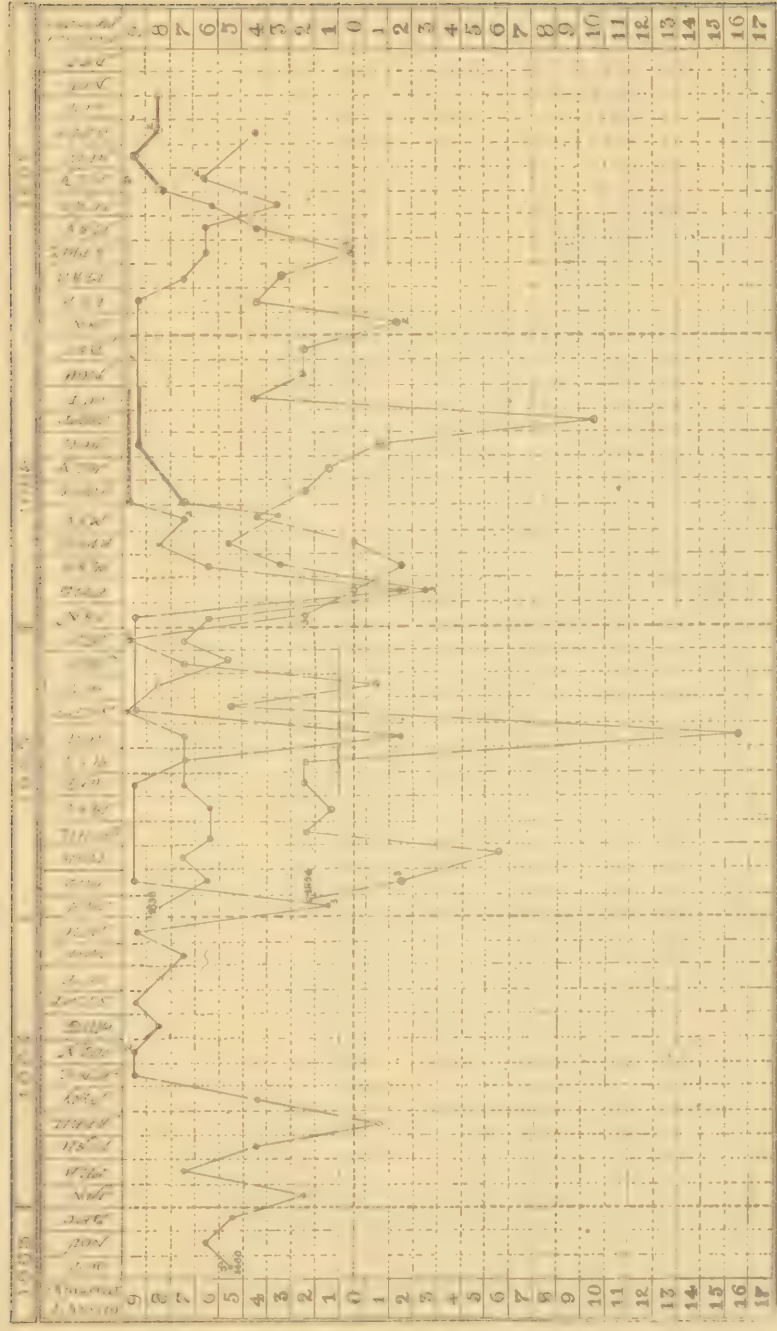
In the study of the charts it should be taken into consideration that, during the period covered by physical training, the men were exempt from task work in shop, and while, in the main, all were able to perform this requirement, they did so paroxysmally, or in spurts. The value of physical training is not to be measured by the degree in which the men responded to the stimulation incident to the training, but to their maintaining themselves after the removal of this stimulus and their return to shop discipline and task.

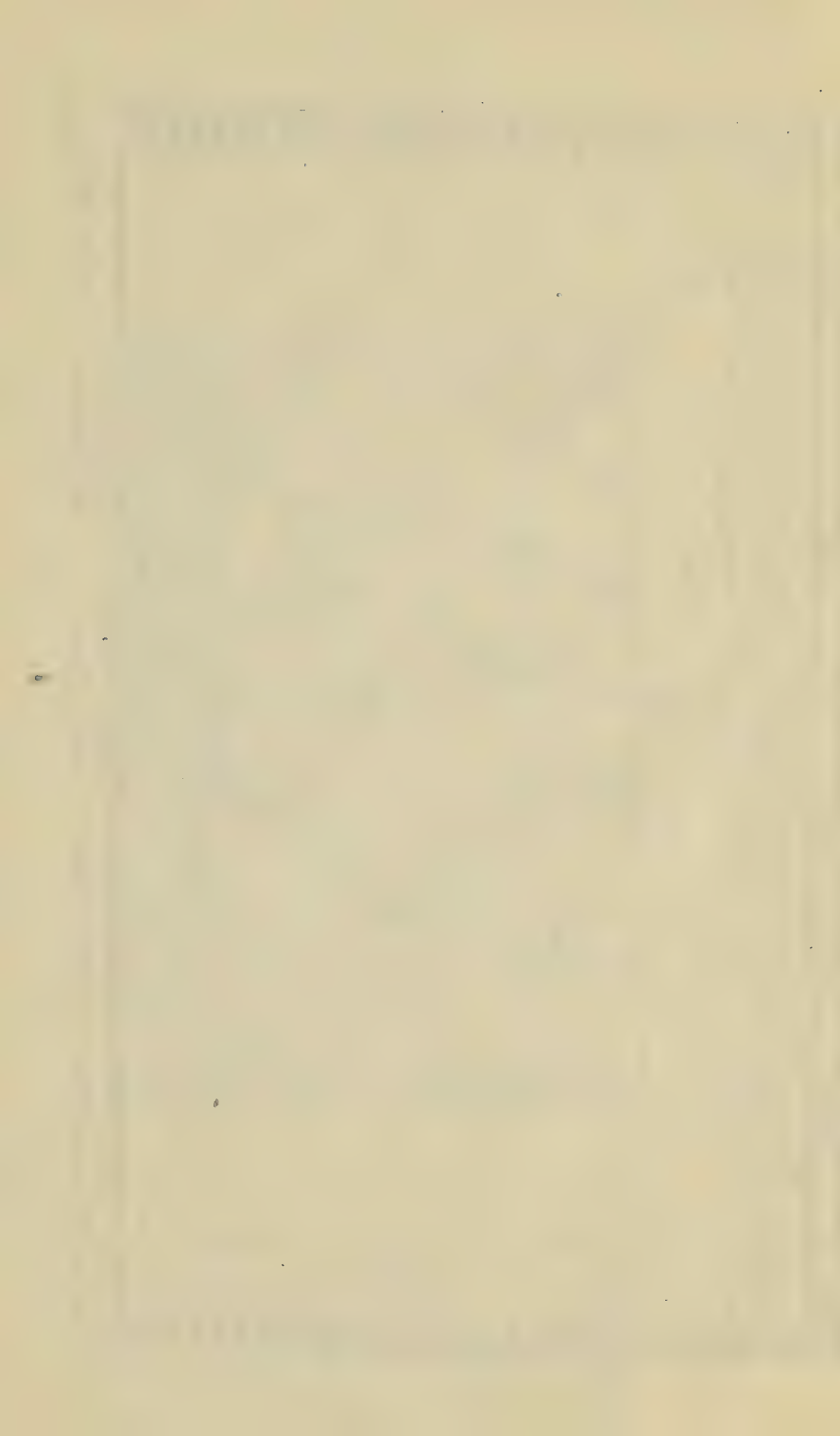
Number 1,460, convicted of a sexual crime, has all the characteristics of a brute and but few of those of a man. Admitted in October, 1883, his prison career has been a succession of ups and downs, through failures in labor, school and demeanor, some months being deficient in one of these three-fold lines, at others in two, and not rarely, in all. Taken in hand in June, 1886, when gathering himself together after a fall, he earned that month a 7, an 8 the following, and in August, a 9, the first in fourteen months, or since June, 1885.

From this time on until November, or during the continuance of the class, he has an unbroken series of 9's. After being returned again to shop work and former conditions, he maintained his record till March, 1887, when he began to fall back into his former habits of faulty performance of work and violation of rules. From this time on his marking presents the same fluctuations as formerly, although, to his credit, it must be said, his performance of school work has been more satisfactory than his labor and demeanor.

Number 1,835, a thief, presented a similar series of fluctuations in marks, though not to so great a degree. Gaining the second grade in May, 1886, and placed in training the following month, he made a perfect record for six months, when he was promoted to the 1st grade. His record shows thirteen consecutive 9's, the first five of which were gained while receiving special treatment, the balance, under conditions he had previously been unable to overcome. In July of the present year, 1887, he was released upon ticket-of-leave, after thirteen months of perfect record.

The tracing of 1,854, a thief, utterly devoid of all moral sensibilities, shows greater fluctuations than in the cases of the others charted. Received in January, 1884, his marking ten months later is —6. The following month he earned a 2, and continued to do poorly until August, when





he reached his lowest, or —16. Gathering himself together, he earned a 5 the next month, which was followed by a dropping down to 2, when he recovered with a 7 in November, followed by an arbitrary 9 in December, a 9 not earned, but given in hopes of inspiring him to continued efforts.

From this time on till he was placed in the physical culture class, his record presents a series of falls and partial recoveries. Taken in hand, July, 1887, when he was recovering from a fall, and with a 6 to his credit in June, he earned an 8 in July, and a 9 in August, the only one gained by his own unaided efforts in the thirty-two months he had been in prison. The following two months his marking was 8, and in November he was returned to shop work. This man, the least promising of any under observation, labored more satisfactorily after his course of training than he had ever done before, his improvement being remarked by his keepers, skeptics as to the possibility of stimulating the brain through development and increased control of the muscles of the legs, arms and hands. He was selected for experimentation, not with the expectation of overcoming his clam-like characteristics, but to note if he could be made to respond to systematic stimulation applied through his muscular system.

2,096 was an uneducated awkward country boy, convicted of burglary. He began his prison life in laziness, and a disregard of rules, and four months after admission, was in the third grade, where he remained until removed from shop task, as a ne'er-to-do-well and placed in training. Of all the men, he responded the most promptly to treatment, receiving a marking of 9 in June, 1886, the first month, as against a 5 the preceding. During the five months he was bathed, exercised and drilled he made for himself a record of five successive 9's, and afterward, when returned to industrial work, maintained himself for three months, or until February 1887, when his marking fell to 7

by reason of attempted fraud in school examination. The next month he recovered himself and earned by honest and faithful work in school and shop six consecutive 9's, going out in August upon parole. The change wrought in this boy, by body training was most pronounced. In the beginning of his prison life he was a dull, shuffling country lout. He left with mind awakened, and feet and legs so under control he could walk without interfering or tripping.

The description of these four will answer for the remaining three that are charted.

The impossibility of a complete separation of mind and body is apparent, when it is remembered that that part of man denominated the mind is located in the brain, and dependent upon the anatomical integrity of the latter for the proper performance of its function.

Before the mind could be impressed in the case of these dullards it was necessary to bring the body to the highest degree of perfection and functional activity, in expectation that increased cerebation would follow developed muscles and stimulation of the peripheral nerves. The late Dr. Edward Seguin, by the systematic training of the hand and eye, ignoring letters in the beginning, gave understanding and cunning to an idiot brain.⁸

The criminal dullard is a being of coarse fibre. He represents raw material in the rough, waiting for a moulding hand to overcome his crudeness and give him impress. To accomplish this, radical measures must be employed, and a departure from time honored methods of procedure. In the beginning the school room should occupy a secondary place. Bodily improvement, and through this, the placing of the brain in the most favorable condition for mental action, should mark the initial movement, after which it will be time to employ the usual and more common methods of teaching as carried out in the school room.

⁸ Archives of Medicine, October, 1879, December, 1880.

Systematic bathing and massage stimulate the cutaneous system, raising to the highest degree of functional activity one of the chief eliminative organs of the body. The peripheral nerves are stimulated, and they in turn act upon their brain centres in accordance with the law of mutual dependence. In describing the psycho-physiological training of an idiot hand, Dr. Seguin noted the greater possibility of acting upon the centres from the periphery than upon the periphery from the centres, at least in the period of growth.⁴

Functional derangements of the skin are commonly encountered in the criminal of coarse fibre and small mental calibre, and the bath is an agent of no little value in the education of this class, as bringing different parts of the body into greater harmony.

The importance of the muscular system may be inferred from the fact that without muscular tissue there could be no life or motion, nothing to formulate or give expression to the workings of the mind,—the brain.

The muscular system is supplied with afferent and efferent nerves, nerves of sensation and motion, connected with nerve centres within the brain. A single muscle is not a simple organ, but an organism possessing dual properties, a contracting executive mechanism composed of the muscle proper, and a stimulating regulative residing in the nerve fibre and gray matter nerve cells. A large district within the brain is composed of motor centres presiding over motor ideas, and according as certain muscles are exercised and cultivated at the proper time, the growth period, the cells of gray matter comprising these motor areas are developed and multiplied. Each centre presides over its own group of muscles, and the neglect of these muscles through defective exercise and other causes will result in a weakening of that centre and a defect of the motor system.

⁴ Archives of Medicine, October, 1879, p. 155.

As a muscle is exercised it is made to grow, and as it grows it develops and strengthens the nerve centre that controls it. The muscles of an infant, giving expression to aimless and incoördinated motion, and those of the artisan, trained to delicate manipulation, are composed of similar anatomical elements, but the difference which characterizes them resides in the nervous mechanism representing the movements of which they are capable, and **not in the muscles themselves.** The motor centres of the artisan are the largest, and the cells in his motor areas are more numerous, larger, more branched, and more widely connected with other cells.

To train these dullards' arms and legs to motions of precision, and to act in unison, was something more than muscular development and exercise, in the common acceptance of the term; it was mental training as well as physical.

Physical training is especially indicated in the case of the youthful criminal not yet out of his teens, who enters upon his prison life poorly nourished, anæmic, and with muscles soft and flabby, whose life has been passed in dark and unsanitary tenement houses, or homeless upon the street, exposed to the vicissitudes of weather. To such an one, as well as to the dullard and the shuffling country lad, whose every motion expresses mental lethargy, indicative of a development of the motor centres of the brain not sufficient to properly coördinate his muscles, it becomes a mental as well as a physical setting up.

It is not necessary that exercise should be agreeable in order to be beneficial. All exercise, when pursued systematically, and after the charm of novelty has passed away becomes distasteful and irksome. The captain of the "Varsity" crew, in training for the race, experiences difficulty in keeping his men together and holding them to a rigorous regime after their first enthusiasm has subsided, in spite of their ardent desire to carry their colors

on to victory. The continuation of physical training, after novelty ceases to be a stimulant, adds a training of the will to that of the body and becomes a lesson in self mastery and control. And the very energy required to be put forth in overcoming this distaste is a wholesome discipline.⁵

The question of dietetics in connection with the physical training of criminals is an important one. It was noted that those men who had a special dietary and a stated allowance of food thrived better than those who received the regular prison fare, without restriction as to quantity. The dietary already mentioned as employed with the first class seemed to meet every indication and supplied the men with energy requisite for the work required of them, although further experience and observation may suggest modifications and changes.

The criminal dullard is the antithesis of the West Point and Annapolis cadet, and in order that any good may be evolved from him, and correction of his abnormal condition, he must be generously supported and nourished, lest he give way under the strain imposed upon him in the work of physical renovation, and fall into a state worse than his first.

In the light of physical training being brain culture, beginning with the development of the motor nervous system, and passing on to the cultivation of the sensory nervous system and mental faculties, the choice of a trainer is a matter of no little moment. It goes without saying how unfitted for such a duty and incompetent to deal with a class of beings requiring tact and firmness in their management, is one who has no greater conception of exercise than the getting up of muscle or the working off of superfluous animal spirits. He should have received instruction at some physical training school for teachers, or turning school possessing sufficient resources to enable him to

⁵ D. A. Sargent, M. D., *Scribner's Magazine*, July, 1887.

vary his exercises and interest his men. He should have knowledge of the physiology of exercise, recognizing the fact that it is the weak spot that determines the strength of the body, predisposing to disease and death; and by a course of cultivation along the line of least resistance bring the weak as far as may be into harmony with the strong.

In the prisons and reformatories of the country there is a class of youthful felons in their growth period that can be reached and improved primarily through the training of the body, the cultivation of the head following in good time. If our penal institutions, in their educational work, would come to look upon bodily training from the same point of view as do the higher seats of learning, more men would be released at the expiration of their time, fitted and competent to maintain themselves honestly, than under the only too general system at present in vogue, wherein a man is regarded as a mere machine for work, contributing entirely or in part to his maintenance, as he may be able, at a decreased cost to the state.

Having in the line of my duties within the past year witnessed the results obtained in educational work through bodily training, I am an advocate of the employment of an instructor in physical culture and the treatment in accordance with this plan, as a part of the educational system, in a course of not less than six months duration, of the overgrown dunce, and physically defective through malnutrition and past excesses. Such a course might, at first, result in a monetary deficiency, but the improved condition of the men, and their increased capabilities for production, would, in the end, offset the initiatory loss.

“Hard labor” is usually a concomitant of the time sentence, and in the beginning was imposed as a deterrent measure. At the present time, and apart from all pecuniary considerations, it is regarded as best for the prisoner's welfare that he should labor at some productive industry,

rather than engage in aimless occupation, as the carrying to and fro of stone; for nothing contributes in a greater degree to physical, mental and moral demoralization than enforced idleness in prison.

The introduction of labor saving machinery, and assigning to each workman a specified task and part, have wrought a change in methods in vogue in work-shop and manufactories engaged in production upon a large scale; and especially is this noted in the manufacture of those articles calling for a diversity of processes to unite and blend into a harmonious whole. The same rules and methods governing the distribution of general labor obtain in prison industries, and the rule is the assigning to each man a certain part to do, and his retention at it till he becomes more expert and proficient in his department and economical in the use of material, than would be in the case of the mechanic who evolved the finished article from the rough. In the shoe-shop, once a laster or treer, always a laster and treer; in the making of brushes, a drawer or borer; at brooms, a winder or sewer; and in moulding, the confining to certain lines of work, as hollow-ware or stove-plate.

The competition of business and laws governing trade, have brought it about that a man's labor is utilized to the utmost, and experience has demonstrated that this can best be done by confining him to a single branch of a given industry, and developing him to the utmost along this line, instead of teaching the principles and practice of the trade, in all its details. While the monetary returns to the state and the daily production are greater under this system of specialization in a given department, yet the workman through the constant repetition of his task becomes, to a greater or less degree, an automaton, an animated automatic drawer of brushers, sewer of brooms, shoe-laster, or moulder of pots and kettles, as the case may be; and not the skillful all-around moulder, as the

boy who learns his trade in the village foundry, or the shoemaker who received his first instruction sitting on the cobbler's bench and can make a shoe complete.

Under the general prison system (though happily there are exceptions, with but a slight knowledge of a given trade, and even then, proficient only along a narrow line, and in a single department), a man, at the expiration of his sentence, is thrust out into the world with a miserable pittance in his pocket, the stigma of the past attaching to him, to seek employment in industries not widely distributed, and failing in this to join the already overcrowded ranks of unskilled labor in the struggle for existence. Unsuccessful in his efforts to obtain employment, or regarded with distrust by those with whom he seeks to labor, discouraged and his means exhausted, he lapses into crime, not because he is a criminal by instinct, but baffled in his efforts to maintain himself, he commits crime that he may relieve his bodily necessities. The fault is in the system governing the treatment the man has received, and not alone in the individual, though there are criminals through heredity and choice that no scheme can readjust, who all their lives will be breakers of the law.

Of those committed to the three prisons of New York State, Auburn, Sing Sing and Clinton, during the year 1886, over fifty per cent. were idle at the time of arrest; and of the entire number, between forty and fifty per cent. had no trade, or had followed occupations calling for no particular skill or aptitude, untrained laborers and the like. Such are these during their prison sojourn, if put at routine or semi-mechanical work, learn nothing that will be of practical value or aid them in bettering their condition when their time shall have expired, the only results of their prison labor being their contribution towards their maintenance and a proportionately decreased cost to the State, while the opportunity presented of renewing their physical powers, through wholesome and sufficient food

and regular hours, prepares them to resume, with renewed vigor, their former habits of lawlessness and dissipation. The State looks after their bodily comforts, warms, feeds and clothes them, utilizes their labor for profit, if possible, and turns them adrift at the expiration of their time, but neglects to train them in pursuits and occupations that will add to their capacity for self-support, and develop the latent manhood that may be in them. Many of these men are not confirmed bad characters, utterly irreclaimable, but were led into crime through bad habits primarily arising from the precarious living they were able to make owing to their limited capacity to labor in other than **unskilled and menial callings.**

The apprentice or indenture system is better known in this country at the present time by name than from a knowledge of its operations. Industrial and trades schools whose work has silently, but none the less effectually been going on, have replaced it, until they have come to occupy an undisputed place in technical education. Abroad, the technical and trades schools receive governmental support and encouragement, and are kindly regarded by the employer, who recognizes in them the source from whence he is to obtain his skilled and expert workmen, versed in practice and theory, and not the mere mechanic who works with his hands but not his head. While the State encourages art and the sciences and is openhanded in educational work, it has not displayed the same activity or spirit in improving the condition of its wards, the prison class, in furnishing them means and facilities for improvement, as in the case of its children at large.

A better sentiment is beginning to prevail regarding the industrial training of prisoners, not alone in New York, but throughout the land, different States studying the problem, each in its own way, but all working for a common result.

In his report for the year 1886, the Superintendent of

State Prisons of the State of New York observes: "The man who is discharged from a prison is disabled, in a measure, by the fact that he has been in prison. He stands, for this reason, in more need of possessing a trade or knowledge of some industry and the habit of practicing it, and of self-confidence and self-denial, than the man who never was in prison. And it seems that the State does not perform its duty toward these men, unless it teaches them trades or skilled industry, and helps them to form the habit of working so they can better carry the load which handicaps them in their 'battle of life' after leaving prison.

"It is a fair question whether technical industrial training could not be taught in the schools, with the greatest advantage to the men and to the State—instructing the most intelligent and capable in the industries pursued in the prisons, with a view to the highest efficiency in prison work, and the most practical education of the men."⁶

The Superintendent of the Colorado State Industrial School puts himself upon record as believing that "All reformatory work must be founded on industrial employments. To make the school industries of such a nature as to be helpful in procuring an honest and comfortable living after leaving the institution has been our endeavor."⁷

The Legislature of Kansas has passed a bill entitled, "An Act to Provide for the Organization and Management of the State Reform School," section 10 of which says: "The Board of Trustees shall have full power to place any boy committed as herein described, during his minority, at such employment, and cause him to be instructed in such branches of useful knowledge as may be suitable to his years and capacity, as they may see fit; and they may, with the consent of any such boy, bind him out as an apprentice during his minority, or for a shorter

⁶ Annual Report of Supt. of State Prisons, of New York, 1886, pp. 39-42.

⁷ Biennial Report of State Industrial School of Colorado, 1885.

period, to learn such trade and employment as in their judgment will tend to his future benefit; and the President of the Board shall for such purposes, have power to execute and deliver on behalf of said Board, indentures of apprenticeship for any such boy, and such indentures shall have the same force and effect as other indentures of apprenticeship under the laws of the State, and be filed and kept among the records of the Reform School, and it shall not be necessary to record or file them elsewhere."

And the Superintendent in his last report calls attention to the fact that "Provisions should be made for carrying on industrial pursuits during the winter months. This can best be done by the introduction of light trades, easily learned, and of a remunerative character."⁸

The Superintendent of the Nebraska State Reform School at Kearney, calls the attention of the Board of Public Lands and Buildings to the value of manual labor and instruction in the following emphatic and unhesitating language :

"How to keep our boys profitably employed when not in school, has been a difficult matter owing to the lack of trade facilities. With the completion, however, of the workshop and the furnishing thereof with proper tools, this problem will be partially solved. For a full solution we must look to the manual training school system.—Whatever trades are introduced should be taught as a means of education for the inmate, in addition to preparing him to gain a livelihood hereafter. The good of the individual should be paramount, and hence the 'farming out' of the labor of boys to persons whose interest in them is only mercenary, is not only pernicious, but it defeats the object and aim of reform work. Those who employ such help supplant mechanical skill and inventive genius with automatic machine drudgery.

⁸ Biennial Report of State Reform School at Topeka, Kansas, 1886.

“Whatever is done in the way of trades should be of a manual nature, especially in a state like our own where manufacturing by machinery is in its incipency. Better for the boy that he learn to make an entire shoe by hand than a part of a shoe by machinery. In the former instance he can get employment in almost any town or village as soon as he leaves the institution, while in the latter case it is almost impossible for him to get a situation. So in any vocation. The practical side should be the guiding motive. The boy should be properly equipped for his future career. Such trades as tailoring, shoemaking, carpentry, printing, tin-smithing, and the like, are desirable, because the boys can turn them to practical use as soon as they receive their leave of absence.”⁹

Ohio is teaching its youthful criminals and offenders upon the broad basis that manual training is head training. The following from the thirtieth annual report of the Boys' Industrial School conveys an idea of the scope of the work:

Besides what is taught in our schools, we teach as branches of industry, farming, fruit-growing, teaming, gardening, blacksmithing, carpentering, shoemaking, painting, glazing, tailoring, brushmaking, mending, baking, laundring, dining-room and housework, vocal and band music, brick-making, brick-laying, plastering, telegraphy and printing. In a few months after the new shop, now nearly completed, is fully equipped, a number of boys will be taught mechanics by the polytechnic system. By this addition to our mechanical departments now in operation, we hope to teach many more boys trades than formerly. In every department the boys are taught that labor is honorable, and should be cheerfully performed. Each department has a competent foreman, whose duty it is to supervise and train the boys in their trades and education.”¹⁰

⁹ Biennial Report of State Reform School, Kearney, Nebraska, 1886.

¹⁰ 30th Annual Report of the Ohio Boys' Industrial School, 1886.

In February, 1886, the work of industrial training as a part of the school system was entered upon at the Elmira Reformatory. The trade school has now been in operation for a period of twenty months and at the present time of writing over one hundred and twenty boys and young men, or fifteen per cent. of the entire population, are receiving instruction in various trades, as blacksmithing, stone-cutting, brick-laying, plastering, wood-carving and turning, carpentry, fresco-painting, and the use of the lathe, planer and other machinery usually met with in the jobbing shop.

Two hours, two evenings in the week, are spent in actual labor, each step of the work being criticised by instructors, and when wrong, repeated until the error is corrected. The instructors are citizen employes, foremen in their respective branches, in the regular work of the reformatory. Each month a written examination is had of the work done, the results of which become a part of, and influence, the school marking of the pupil; failure in trade school affecting his standing as would failure in arithmetic or other studies.

When the Trade School was first opened, it was regarded with suspicion by most of the prisoners and looked upon as an additional measure to exact extra work under the guise of teaching them a trade, and many applications were made to be excused from its operations on account of factitious and fictitious physical disabilities. As the objects and purposes of the school came to be understood, and a better sentiment prevailed concerning it, requests for permission to receive industrial training took the place of former attempts at evasion. The Trade School is now crowded to its fullest capacity, and a large number of men who have voluntarily applied for admission and participation in its advantages, are waiting for vacancies to occur. Industrial instruction is now regarded by the prisoners as a privilege, and appreciated, for the benefits to accrue to them later; while malingering and shirking are the exception.

The machine shop is supplied with lathes, a planer, drill press and milling machine, together with vise-benches, equipped with hammers and chisels, files, sets of taps and dies, and the ordinary tools found in a repair shop. Some of the more advanced pupils have become so proficient in the use of the machinery and tools that during the present fall a number have been taken from their task work in the productive industries and detailed for special work in the preparation of a plant for a new industry shortly to be inaugurated. Under the general supervision of a foreman, they have turned shafting, cut key-seats, faced and bored pulleys, planed face plates and the like, and done work that formerly would have been sent to some shop in the city.

The blacksmith shop consists of six forges and twelve anvils, and is equipped with a full complement of tongs, hammers and sledges. Beginning with instruction as to the use of the hammer and tongs and sledge, the men are given a hammer practice upon the softer metals, as lead, and taught the management of the forge, and to what heat it is necessary to bring iron and steel that it may be successfully worked and shaped on the anvil, being drilled in welding and the procedures common to the trade, as the laying out of work and the like.

The classes in brick-laying are given instruction in the mixing and tempering of mortar, and practical drill in the laying of brick, construction of arches, angles, and the processes necessary in the construction of a building. Within a short time, a shop, two stories in height and sixty by two hundred and fifty feet has been erected, the brick-laying for which was almost entirely done by men who had received their first industrial instruction in the Trade School. The smoothness of the walls, the uniformity of joints, and the rapidity with which the building assumed proportions, were alike gratifying to instructors and the pupil mechanics.

Material in the rough is supplied the stone-cutting class, to obtain in the beginning a working knowledge of the tools and the necessary treatment of various kinds of stone, to properly fashion the sill or window cap, and to dress to a scale or level.

For plastering work the recesses are fitted up where the men are familiarized with tools and material required, taught to lath and apply the scratch coat of plaster and the succeeding coats, completing the work with the sand or plaster finish as may be desired, finally placing the cornice and centre-piece.

The frescoers are supplied with screens, upon which they draw their patterns and apply the colors, learning the technique of the brush; or they follow the plasterers, decorating the work of the latter, besides being given instruction in the mixing of colors, with demonstrations of the principles and practice involved.

Six lathes run by steam power furnish facilities for instruction and practice in wood-turning, deftness with the tools following their use and familiarity with shape and purpose. The class has yielded practical results in the production of table and stand legs which have gone into furniture in daily use, with handles that have been sent to the brush shop to be drawn and afterward disposed of with other wares.

A dozen or more benches are devoted to the classes in carpentry and wood-carving, each supplied with a complete equipment of tools per man, and adapted to the work in hand.

As supplementing the trades' course, instruction is given in free hand and mechanical drawing, it being considered that drawing is to the trades what writing is to letters. Although all cannot be made accomplished draughtsmen, yet each man can acquire such a working knowledge as will be of material benefit and advantage to him in his line of industry. Appended are some of the schemes and out-

lines in special branches, showing the general plan of the work of industrial teaching. I have given them at length that the scope of the school may be the better understood.

N. Y. S. R. SCHOOL,

SUMMER TERM, 1886.

COURSE OF INSTRUCTION IN DRAWING.

The following synopsis of the courses of instruction in mechanical and freehand drawing exhibits the work hereafter obligatory on the pupils pursuing them, viz :

All pupils in the "advanced section" of mechanical drawing will be required to complete courses 1, 2, and 3.

Pupils in machine drawing will, in addition, take courses 7, 9, and 12.

Pupils in architectural draughting will take, in addition, courses 4, 5, 8, 9, 10, 11, 12, 13 and 14.

Pupils in cabinet-making will take, in addition, courses 6, 9, 10, 11, 12, 13, and 14.

Pupils in advanced frescoing will take only courses 1, 9, 10, 11, 13, and 14.

All pupils in the trade school classes will take courses 16, 17, 18, and 19, on completing which they may, according to ability and need, be required to pursue suitable courses of the advanced grade.

Course 15 is specially designed for the pupils of the lowest primary classes.

I. ADVANCED SECTION OF MECHANICAL DRAWING.

1. Elementary plane problems.
2. Orthographic projections.
3. Isometric projections : elementary shades, shadows and perspective.
4. Working drawings of building construction.
5. Architectural perspective.
6. Working drawings of furniture.
7. Machine drawing.
8. Stone cutting.

Text-books: Davidson's *Linear Drawing and Projection*, Davidson's *Drawing for Stone-Masons*, Morse's *Perspective* in Krusi's Series, Tuthill's *Lessons in Architectural Drawing*, Wright's *Architectural Perspective*, *The Practical Cabinet Maker*, Stone's *Examples of Machinery and Carpentry*, Ware's *Examples of Building Construction*, Babcock's *Details of Historical Architecture*.

II. FREEHAND DRAWING.

9. Outline drawing with pencil, pen, chalk and brush: flat copy and round: ornament and machinery.
10. Drawing in shade: various media: flat and round: ornament.
11. Historical ornament.
12. Architectural and machine sketching.
13. History of art.
14. Theoretical elements of design and decoration.
15. Drawing for illiterates: outlines of simple ornament, tiles etc.

Text-books: Cleave's *Outline and Relief Ornament*, Carter's *Crayon and Stamp Drawing* etc.

III. MECHANICAL AND FREEHAND DRAWING FOR TRADE SCHOOL PUPILS.

16. First month: Use of instruments, definitions; elementary problems in bisections, perpendiculars, tangents, angles and parallels.
17. Second month: Elementary problems in circles, polygons, and higher curves.
18. Third month: Elements of projection drawing: plans, sections, etc., of ordinary geometrical solids.
19. Fourth month: Practical applications: problems in carpentry, metal-work, bricklaying, etc. Scale and freehand drawings of tools and work.

Text-books: Decker's *Manual of Industrial Drawings*, chapters I, II, III, IV, V, VI, and IX; with dictation and other special work by instructor.

READING.

Pupils are advised to make use of the trade and professional works of reference in the library, or the periodicals dealing with their respective courses, which will be supplied regularly on request.

EXAMINATIONS.

Examinations will be held every month in all courses where such test is practicable.

The class room teaching is largely didactic, supplemented by a printed outline of each recitation distributed to the class a day or two in advance of its meeting. The following are two of the outlines given to the class in drawing.

Winter Term, 1886-7.

MECHANICAL DRAWING.

Outline of Problems, No. 1.

Oct. 30th.

Problem I. *To bisect a straight line.*

Draw the line A-B. At A and B, as centres, with the same radius, draw arcs cutting above and below the line. Through the points in which these arcs meet, draw a second straight line. The second straight line will cut the first (A-B.) at its middle point.

Problem II. *To draw a perpendicular to a line at one of its ends.*

Take a point over the line and about one third of the distance between the ends. From this point draw a circle so that it may pass through the nearest end of the given line. The circle so drawn will also cut the line in another point. Through this last point and the centre of the circle draw a straight line. This straight line will cut the circle in another point above the centre. Through the end of the line and the last point found draw another line and it will be perpendicular to the first or given line.

Problem III. *To find the centre of a circle.*

Take any three points on the circle and connect them by two lines. Bisect each of these lines. The bisectors will meet at the centre of the circle.

Problem IV. *To draw a tangent to a circle at a given point.*

Draw the radius to the given point. Then at the point where the radius cuts the circumference draw a straight line perpendicular to the radius.

Spring Term, 1887.

TRADE SCHOOL DRAWING.

Feb. 9th.

LINEAR AND GEOMETRICAL DRAWING.

No. I.

There are only two kinds of lines *straight* and *curved*. By these we construct all forms.

A *straight* line may be defined as a point continued in one direction, or, as the *shortest* distance between two points.

A *curved* line is one in which the direction is constantly changing.

A *compound* line is the joining of a straight and a curved line.

A straight line can be placed only in three positions, viz; *vertical*, *horizontal* and *oblique* or *slanting*. The horizontal or vertical positions never vary, while oblique or slanting lines may incline more or less.

A perpendicular line is any one that is at right angles with another line.

Diagonals are lines crossing to opposite angles.

Parallel means running in the same direction and keeping the same distance apart from each other—thus the metal rails on a railway are parallel to each other.

To “produce” a line means to carry it on further, or to make it longer in the same direction.

Problem I. *To bisect a line.*

A—————B

Draw a line of indefinite length, place the steel point on A; open the compass until the distance is more than half the line. Keep the steel point on A, and with the pencil point draw a part of a circle.

Place the steel point on B, and with the same radius draw another part of a circle which will intersect the first one.

Draw a line through the intersecting points, and it will cut the line AB into two equal parts.

Problem II. *To divide a line into any number of equal parts.*

A—————B

Draw a line parallel to A B, let it be a little longer, and from one end set off along the line the number of equal parts into which the line A B, is to be divided.

These parts may be of any convenient size, but must be all equal.

Draw from the first and last points set off, a line which shall touch the extreme ends of the line A-B, and intersect each other; from this intersecting point draw lines which will pass through the other points set off, and it will divide A-B, into the required number of parts.

COURSE OF INSTRUCTION FOR BLACKSMITHING CLASS.

First month.—Hammer practice on lead.

Second month.—Hammer practice on lead.

Third month.—Sledge and hammer practice on lead.

Fourth month.—Hammer practice on iron.

Fifth month.—Sledge and hammer practice on iron.

Sixth month.—Welding with hammer.

Seventh month.—Welding with sledge and hammer.

Eighth month.—Welding, forming iron in different shapes, and learning use of tools.

Ninth month.—Further practice in eighth month's work.

Tenth month.—Further practice in eighth month's work.

Eleventh month.—Working and tempering steel.

Twelfth month.—Welding steel.

Summer Term, 1886.

COURSE OF INSTRUCTION IN BRICKLAYING.

June 1st., 1886.

First month.—Tools and materials, elementary practice in rough brick-laying.

Second month.—Elementary practice continued, with beginnings in finer face-work; angles.

Third month.—Continued practice in second month's operations, work of graduated difficulty in facings and finish.

Fourth month.—Piers of various shapes and dimensions.

Fifth month.—Bonding; practice in common work.

Sixth month.—Bonding, continued.

Seventh month.—English bond work.

Eighth month.—English bond, continued. Flemish bond.

Ninth month.—Blind and other special bonds.

Tenth month.—Plain arches.

Eleventh month.—Further practice in arching.

Twelfth month.—Problems in arches ; cornices.

INSTRUCTION IN PLASTERING.

First month.—Tools and materials ; lathing.

Second month.—Scratch coat plastering.

Third month.—Second coat and floating.

Fourth month.—Third coat ; sand and plaster finishes.

Fifth month.—Continued practice.

Sixth month.—Cornices and centre pieces.

COURSE IN STONE-CUTTING.

Oct. 1, 1886.

First month.—Use of tools—rough practice.

Second month.—Face and angle work.

Third month.—Sills.

Fourth month.—Sills.

Fifth month.—Drafting and tooling.

Sixth month.—Quoins.

Seventh month.—Cutting arch-stones.

Eighth month.—Cutting arch-stones.

Ninth month.—Chamfering.

Tenth month.—Moulding.

Eleventh month.—Elementary practice in difficult angle work.

Twelfth month.—Course of eleventh month, continued.

COURSE OF INSTRUCTION FOR CARPENTRY CLASS.

June 1, 1886.

First month.—The rule and pencil ; measurements ; the try-square.

Second month.—The cross-cut and rip saw ; sawing square and straight.

Third month.—The use of the bench planes and adjustment of the irons.

Fourth month.—Cutting shoulders and tenons with the saw ; use of the boring machine.

Fifth month.—The framing chisels and their uses ; mortising.

Sixth month.—Use of the brace ; the steel square and its elementary applications ; laying out common rafters and braces.

Seventh month.—The use of the gauges ; gauging lumber to given width ; planing and jointing boards.

Eight month.—How to make a tool chest or a common box.

Ninth month.—How to lay out common stairs.

Tenth month.—The laying out and framing of hip and valley rafters.

Eleventh month.—Chiseling and gouging ; cutting stop chamfers, fluting, etc.

Twelfth month.—Making and casing up window and door frames.

COURSE OF INSTRUCTION FOR FRESCOING CLASS.

First month.—The materials and their manipulation ; the mixing and tinting of sizes ; easy geometrical patterns outlined and colored ; colors and their combinations.

Second month.—Stenciling ; making stencils from given designs ; pouncing and pricking in ; practical stenciling.

Third month.—Stenciling continued, with more difficult designs ; hand-shading and outlining ; graduated tinting.

*Fourth month.—Frescoing as applied to interior decoration ; enlarging designs to scale ; notes on different kinds of surface ornament ; powdered ornament ; execution of easy free hand surface patterns for wall and ceilings ; borders. †

*Fifth month.—Diaper ornaments in frescoing.

*Sixth month.—Historical ornament ; general notes and examples of different styles ; study of Gothic polychrome decoration ; surfaces and borders ; gilding and bronzing.

*Seventh month.—The Gothic style continued.

*Eighth month.—The Renaissance style.

*Ninth month.—The Renaissance style.

*Tenth month.—Eastern surface decorations ; the Moorish style.

*Eleventh month.—Persian and Indian styles.

*Twelfth month.—Japanese decoration ; practice in moulding and centre pieces.

* Beginning with the fourth month, outlines will be given out monthly on the mixing and use of sizes, kalbommes, bronzes, etc., and the written examination of these outlines will count equally with the practical work.

FRESCOING OUTLINES.

Winter Term, 1886-7.

Nov. 1.

PREPARING DESIGNS.

The selection of designs for walls and ceilings, as well as for the different portions of a building, is a matter which invariably requires careful consideration and study, not only with a view of avoiding a disturbed effect, by the association of conflicting lines, but with the view of obtaining a proper balance of color.

The difference between a border and a band should be clearly understood. A border is a design which surrounds or encloses a pattern, and to which it strictly belongs, or which surrounds and frames a figure subject; it may accordingly be horizontal, vertical, circular, or curved in any form.

A cresting, which is a description of border, can only be horizontal or raking. A band is a design commonly enclosed within parallel lines, which may be placed horizontally, vertically, or inclined on a plain or patterned wall surface, around columns, across ceilings, or indeed, on any portion of a building. Its use is simply to divide a surface; and when placed between two dissimilar patterns, it must be designed so as to be common to both; when repeated at regular intervals it forms a decoration very often used for the shafts of columns or lower divisions of small surfaces.

Wall patterns, whatever their design may be will group themselves under two classes of ornamentation, known as diaper-work and powderings. Diaper-work includes all patterns which are connected by certain general lines, or spring from some continuous feature or which repeat so closely together as to produce a uniform effect of color and an even distribution of pattern and ground.

Powderings, on the contrary, are devices of an independent nature, repeated at regular distances, but not connected together by any link.

Summer Term, 1887.

COURSE OF INSTRUCTION FOR FRESCOING CLASS.

June 23rd.

Proceedings in the use of colors.

Before proceeding to kalsomine or paint on walls or ceilings it is absolutely necessary to ascertain that they are

thoroughly dry and to examine the nature and composition of the plaster.

In all classes of painting it is necessary to use the purest colors, oil, spirits and varnishes.

Pigments is the scientific name of colors, as also Distemper, the scientific name of dry colors, mixed with glue and gum. Egg-size we use for gilding on distemper painting. This size is mixed with the yolk of eggs and glycerine. Thus, to the yolk of an egg we generally add about thirty drops of glycerine, but it is not always certain whether it is fit for use, as the painter at first must make a trial of the same, in order to find how long it is necessary for it to remain until it is properly dry so as to gild upon it. There is also an oil size, which is mixed with chrome yellow, japan, and boiled oil. Thus, to three tablespoonfuls of chrome yellow add two or three tablespoonfuls of japan, and to this two teaspoonfuls of boiled oil, and after using the same, it must stand long enough so that you may run your hand over the work without it leaving any on your hand; then it is fit to gild on. Oil size is only used upon oil painting.

Points on colors and their uses.

In doing a job at frescoing it is absolutely necessary to have the following material :

If the frescoing is to be worked in distemper, we must only use dry pigments as the following: zinc white, whitening, lamp black, cobalt blue, ultramarine blue, bremer blue, English vermillion, carmine, golden ochre, burned and raw sienna, burned and raw umber, Indian red, Venetian red, Vandyke brown, massacre lake, chrome yellow, orange and lemon chrome and chrome green.

These we call *clear pigments or colors*; the same may be had in oil, that is, mixed in oil, in case.

Tin cups, pails, two plates of glass, one for cutting stencils upon, the other for grinding colors, pumice, a bag of charcoal, pen-knife, stick-charcoal, needle, a square foot of carpet for pricking patterns, chalk line, straight-edge, compasses, glycerine, eggs, gold-cushioned tip and knife, palette knife, sand-paper, shellac, linseed oil, heavy and thin manilla paper, mahl-stick, bronze, gold leaf, brushes and T square.

The shop is lighted by the electric light, warmed by steam, and is comfortable in every respect. Capable instructors are provided, men of experience and skill in their various lines, and all is done to ground the pupils in the rudiments of the trades taught, and give them a sound working knowledge that experience and appreciation of their needs can suggest.

It is an interesting sight, when the school is in session, to see a group of men, felons every one, gathered about an instructor intently listening as he makes clear some step in the work in hand, not fully nor clearly understood, going through the various processes, one by one, and explaining until the dullest mind can comprehend.

It is not expected that with the comparatively limited time for instruction, these men will become skilled mechanics. But rather the idea has been to train the hand and eye, and teach the use of tools, to awaken an ambition to pursue a lawful calling, and appreciate the value of a practical knowledge of a trade, so that when the time shall come that they pass beyond the prison doors, and again come into contact with society, they will not be handicapped by the same conditions that formerly operated to their detriment; but with increased resources mind and body, will be enabled to occupy a higher and more self-respecting plane.

Possessing the rudiments, a working knowledge of a trade, they will encounter less difficulty in obtaining employment than if compelled to return to their former manner of living and dependent upon their unskilled hands.

So much for the economic benefits accruing from industrial training.

In addition, the Trades School possesses an educational value, and becomes as much a means of mental discipline and strengthening for these felon pupils as any class-room exercise. It instructs them in methods of precision, tending to overcome the careless and crude form that has

characterized their previous manual efforts, giving expression to methodical and accurate results, providing an opportunity to exercise and develop their latent sense of form, appealing to the mental and physical powers in a way beyond the mere perfunctory task work in the line of the regular prison industries, and as a means of physical training, of cultivation of the muscles of the eye, the arms and hands, reacts upon the motor and sensory centres of the brain. Excluding all economic considerations, manual training yields returns upon the expense and time it entails, in the improvement noted in the purely mental work of the class room. A comparative study of the school records of men who have received manual instruction shows the influence of the latter upon letters. As coincident with the Trades School came greater aptitude and better results in studies than appeared before, the same being maintained and not transient in character.

The Trades School here has been in operation too short a time to demonstrate the exact measure of its success, and the number of men released who have received industrial training and gone forth to work at the trades they were instructed in, is too small as yet to make a favorable showing, if figures are necessary to carry conviction. But within a month fourteen men have been released and gone to work at trades taught them at the Reformatory, as follows; moulding, three; brick-laying, two; printing type-setting, three; carpentry and wood-work, three; machine work, one; broom making, one; tin-smithing, one.

The signs of the times point to a more healthy prevailing sentiment regarding prison means and management. Penology is, year by year, establishing itself more and more upon a rational and psychological basis. With a dissipation of traditions concerning the care and treatment of the felon that have been handed down and accepted as a legacy from former generations it is not assuming too much to predicate that, as prejudice and ignorance give way to reason, the more advanced and rational methods of education and training in vogue in liberal and progressive institutions of learning will be adopted in the care of the criminal class, at least, with young offenders; those who are in their growth period and age of susceptibility, not yet habitual criminals.

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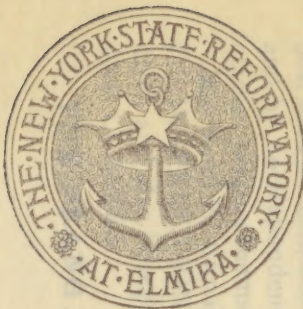
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Surgeon-General's Office,
Washington, D. C.

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